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none was received with more genuine appreciation and honor than Professor de Vries. No more fitting memorial of his summer in America could have been left to his delighted hosts than this series of charming lectures on the most fundamental problems of biology, and one may safely predict that the work will further stimulate the interest that has awakened everywhere in experimental research in variation and heredity, the two fundamental processes of organic evolution.

GEORGE HARRISON SHULL.

STATION FOR EXPERIMENTAL EVOLUTION,
COLD SPRING HARBOR, NEW YORK,
April, 1905.

PROCEEDINGS OF THE CLUB

WEDNESDAY, MARCH 29, 1905

This meeting was held at the New York Botanical Garden, Vice-President Underwood in the chair and twenty-three additional members present.

Mrs. L. Schöney, of New York, and Miss Caroline S. Romer, of Newark, were elected to membership. The scientific program consisted of "Remarks on Californian Conifers" by Le Roy Abrams.

The conifers of California have been of extreme interest to the botanical world from the time that that region was first explored. Nowhere do we find such unique trees as the sequoias, and nowhere is there such a profusion of genera and species. Nearly two thirds of the species of the United States, and all but two of the genera occur within the state. The distribution of these species, especially of some of the more local ones, is of considerable interest, and it was upon this subject that Mr. Abrams chiefly dwelt.

By far the greater number of species occur in the extreme northern part of the state. Here, within a radius scarcely exceeding one hundred miles no less than eleven genera and at least thirty species may be met with. This great profusion is

due mainly to the fact that we have in this region a mingling of the typical Californian species with those of the Northwest.

Nearly all of the local species are confined to the coastal region. Some of these, such as *Pinus Torreyana*, *Abies venusta* and *Cupressus macrocarpa* are extremely local. This peculiar distribution along the coast is of great interest and suggests a field for investigation which is full of possibilities. Mr. Abrams was of the opinion that present climatic conditions together with the broken and unconnected mountains were no doubt largely responsible for the present status of distribution. He suggested that the great changes in land areas to which this region has been subjected during very recent geological time must have had much to do with shaping the destiny of the flora.

EDWARD W. BERRY,
Secretary.

TUESDAY, APRIL 11, 1905

The meeting was held at the American Museum of Natural History, President Rusby in the chair and twenty-two additional members present. Miss Mary Price and Dr. Grace E. Cooley, both of the Newark High School, were elected to membership. The paper of the evening was on "Some Edible Seaweeds" by Professor H. M. Richards.

After reference to the indirect importance of plankton organisms as a source of food for animal life in the sea, the speaker referred to those forms of algae which are used directly by man as food-stuffs. They were grouped roughly under four heads: blue-green, grass-green, brown, and red algae.

In the first group, specimens were shown of a form, which is according to good authority *Nostoc commune flagelliforme*. This becomes highly gelatinous when soaked in warm water and is used as a thickening or sauce. It is much prized by the Chinese. A Japanese form, "Su-zen-ji-nori," of more doubtful nature, but probably an *Aphanothece*, was also shown.

Among the grass-green forms, mention was made of various species of *Ulva* and *Enteromorpha*, which in dried form go under the name of "laver" in the British isles and "ao-nori" among the Japanese. Among the brown forms, only one of the Fucaceae

was mentioned as an article of food, namely *Durvillaea utilis*, which is said to be eaten by the natives in certain parts of Chili.

The Laminaria forms, however, include a large number of edible species. *Alaria esculenta*, common both here and in Europe, was at one time eaten occasionally in the Occident. At the present time the Japanese and Chinese make great use of these forms, indeed, after fish, they constitute the chief article of export of the Hokkaido. They are exceedingly plentiful in that region and their collection and preparation for market is a thriving business.

In this connection, the report of Professor Miyabe and others was passed around and attention was called to the illustrations showing the mode of harvesting the seaweeds. The two most important species seem to be *Laminaria saccharina* (*Laminaria japonica*) and *Undaria pinnatifida* (perhaps identical with *Undaria distans* more recently separated by Miyabe and Okamura) which are known under the respective names of "Kombu" and "Wakame" by the Japanese. Many other forms are eaten however. After reference to the well-known examples "Irish moss" (*Chondrus crispus*) and "dulse," it was said that the two types most used are the delicate *Porphyra* forms and the more massive cartilaginous kinds such as various *Gigartina*, *Gelidium*, *Gloiopeltis* species. *Porphyra* has also been eaten by Europeans and is said to be used by the natives in parts of Alaska, but it is most highly prized by the Japanese and Chinese. Under the name of "Asakusa-nori" it is put up in neat tin boxes and largely sold in the Tokio markets. It is used by itself or for thickening, giving a very glutinous mixture with hot water. "Fu-nori," used chiefly as we use starch, is a mixture of species of *Gloiopeltis* and *Endotrichia*, and like all these forms is sold dried. The speaker referred to agar-agar, which on Wiesner's authority is said to come from different species in different regions. That of Ceylon is from *Gracilaria lichenoides*, that of Java from *Eucheuma spinosum*, while the Japanese variety is furnished by *Gelidium corneum* and *cartilagineum*, and *Gloiopeltis tenax*. Agar, in addition to its uses as a culture medium in bacteriological research, is said to be employed sometimes, as an adulterant in the jellies of commerce, where it may be recog-

nized by the siliceous frustules of diatoms, etc., from which it is never free. Other forms of Florideae are used as food-stuffs, attention being called to their figures in a Japanese popular work on the useful plants of Japan. In regard to the food value of algae it appears that many of them, especially the blue-green forms, contain a very high percentage of proteids, though not much else of value. The gelatinifying substances obtained from the red forms appear to be a substance called gelose, which is similar to, or identical with, the pectic substances so commonly found, either deposited in the middle lamellae of the cells of higher plants, or in the walls themselves. Mention was incidentally made of the use of seaweeds in the manufacture of iodine and soda-ash.

Dr. Rusby exhibited specimens of *Fucus vesiculosus* and an unnamed species of the same genus, which are used medicinally.

Dr. Howe spoke of dulse as an article of food and of its occurrence in the markets of New York.

After further discussion, adjournment followed.

L. H. LIGHTHIPE,
Sec. pro tem.

NEWS ITEMS

Professor L. M. Underwood sailed for Antwerp on May 20. He will spend a large part of the summer at Berlin and Kew.

Mr. L. J. K. Brace, of Nassau, New Providence, Bahamas, is making collections in the western part of the Great Bahama for the New York Botanical Garden.

The fifth annual exhibition of the Horticultural Society of New York was held at the New York Botanical Garden on May 10 and 11. Prizes amounting to about \$500 were offered.

Dr. John Hendley Barnhart sailed for Europe on May 13 to attend the International Botanical Congress at Vienna. During the two or three months of his absence, the editor of *TORREYA* will have charge of editorial matters relating to the *Bulletin of the Torrey Botanical Club*.

The first Walker prize, of \$75, has been awarded by the Boston Society of Natural History to Dr. W. B. MacCallum, of the